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PRELIMINARY

Health Assessment for

ALBION-SHERIDAN TOWNSHIP LANDFILL

CERCLIS NO. MID980504450

ALBION, CALHOUN COUNTY, MICHIGAN

SEP 10 1990

Agency for Toxic Substances and Disease Registry
U.S. Public Health Service

THE ATSDR HEALTH ASSESSMENT: A NOTE OF EXPLANATION

Section 104(i)(7)(A) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, states "...the term 'health assessment' shall include preliminary assessments of potential risks to human health posed by individual sites and facilities, based on such factors as the nature and extent of contamination, the existence of potential pathways of human exposure (including ground or surface water contamination, air emissions, and food chain contamination), the size and potential susceptibility of the community within the likely pathways of exposure, the comparison of expected human exposure levels to the short-term and long-term health effects associated with identified hazardous substances and any available recommended exposure or tolerance limits for such hazardous substances, and the comparison of existing morbidity and mortality data on diseases that may be associated with the observed levels of exposure. The Administrator of ATSDR shall use appropriate data, risk assessments, risk evaluations and studies available from the Administrator of EPA."

In accordance with the CERCLA section cited, this Health Assessment has been conducted using available data. Additional Health Assessments may be conducted for this site as more information becomes available.

The conclusions and recommendations presented in this Health Assessment are the result of site specific analyses and are not to be cited or quoted for other evaluations or Health Assessments.

PRELIMINARY HEALTH ASSESSMENT

ALBION-SHERIDAN TOWNSHIP LANDFILL

ALBION, CALHOUN COUNTY, MICHIGAN

CERCLIS NO. MID98054450

Prepared by

Michigan Department of Public Health

Under Cooperative Agreement with the

Agency for Toxic Substances and Disease Registry

BACKGROUND

The Albion-Sheridan Township Landfill is on the United States Environmental Protection Agency (EPA) National Priorities List (NPL).

The Albion-Sheridan Township Landfill is an inactive landfill covering 30 acres located 1 mile east of the City of Albion. Prior to 1966, the site was an uncontrolled dump. From 1966 through 1981, the privately owned, State-permitted landfill accepted municipal refuse and industrial wastes from Albion and nearby Sheridan Township. In the early 1970s, it received approval by the Michigan Department of Natural Resources (MDNR) to accept sludges described as insoluble hydroxides and carbonates. Some sources estimate as much as 6,000 cubic yards of sludges were accepted. In addition to these metallic sludges, materials believed to have been disposed at the landfill include: paint wastes and thinners, consisting of dried paint residues and waste thinner similar to "turpoline"; oil and grease; and dust, sand, and dirt containing fly ash and casting sand from a nearby foundry.

The waste deposits are estimated to be 6 feet deep. Tests conducted in 1984 and 1986 indicated that the sludges contained high levels of chromium, cadmium, lead, nickel, and cyanide. The landfill was closed in 1981 and was used as a waste transfer station until 1985. During an inspection in March 1986, EPA found approximately 40 drums present at the site. Some drums were leaking and appeared to be filled with oil and grease wastes. An empty tank of approximately 8,000 gallon capacity was also observed on-site. The former contents of the tank are unknown.

Two distinct aquifers are present beneath the site. The upper aquifer consists of unconsolidated glacial deposits. These deposits of sand and gravel range in thickness from 41 to 90 feet. Underlying the glacial deposits is the Marshall sandstone formation. Both of these aquifer units are used as drinking water sources. There is a non-continuous clay layer present between the two units. These two aquifers are believed to be hydraulically connected. The water table in the upper aquifer is found at 10 feet. Groundwater flows in a south to southwesterly direction.

Three of Albion's municipal wells are located 0.87 miles west of the site in the Clark Street Well Field, and four of the city's wells are located about 2.5 miles west of the site in the Brownswood and Albion Street Well Fields. The Clark Street Wells are completed into the Marshall Sandstone with total depths ranging from 254 to 260 feet. Two of these wells are cased to a depth of 76 feet with the third well cased to a depth of 58 feet. Although two of the Clark Street Wells have shown low levels of trichloroethylene in the past, no trichloroethylene has been detected in either well since 1984.

The Brownswood Wells showed low levels of methyl tert-butyl ether (MTBE), an anti-knock additive to gasoline, and benzene in sampling conducted in 1988. The contamination has not been detected in the past nine months since the city has placed the wells in a secondary pumping position. In this status, the wells are only used to supplement other wellfield supplies during seasonal peak demand.

There are at least three known sites with leaking underground gasoline storage tanks near the Brownswood and Albion Street Wells. A leaking gasoline tank was removed in September 1989 from a location that is less than 130 feet from one of the Clark Street wells. To date no gasoline components have been found in water samples from the Clark Street Well Field. Because of the various contamination problems in the area, Albion's municipal wells are on a monthly monitoring schedule for volatile organic chemicals (VOCs).

Two wells for the Amberton Village Subdivision Water System, which is owned and operated by Parma Township, Jackson County, are located 1,000 feet east of the Albion-Sheridan site. Both of these wells are completed into the Marshall Sandstone formation at an approximate depth of 350 feet and cased to a depth of 95 feet. Because of the proximity of the subdivision's wells to the site, water samples have been taken from them and analyzed for metals and VOCs for the past two years. No detectable levels of contaminants have been found.

Approximately 2,300 people receive water from private wells within a 3-mile radius of the site. Although it was reported in 1986 that a landfill operator lived on-site and was using a 108-foot well for drinking water, an October 5, 1989, field visit observed no evidence of this. The landfill is covered with a sand and gravel layer of unknown thickness and with indications that burning has occurred on the site. Vegetation, very dense in some places, is growing on the cover. Warning signs have been placed at the front and back road entrances to the site, but the site remains otherwise unrestricted to public access.

Another NPL site, the McGraw-Edison facility, is located 1 mile northwest of the Albion-Sheridan Township. The Brooks Foundry industrial site, the scene of a recent emergency removal action, is less than one quarter of a mile northwest of the landfill. Approximately 30 private wells in the surrounding neighborhood have been sampled as recently as September 1989 in conjunction with the investigations of these two sites. Only one well, at a residence located east of the Brooks Foundry and northwest of the landfill, showed detectable levels of VOCs.

A Remedial Investigation/Feasibility Study (RI/FS) has not yet been scheduled for this site. The Albion-Sheridan site has been scheduled for immediate cleanup under the Michigan Act 307 program. An investigation of the site by the EPA Technical Assistance Team was performed on October 12, 1989, at the request of ATSDR. Results of the samples taken from four barrels during that visit tentatively identified the presence of ignitable hazardous waste (flash point less than $75^{\circ}F$) in three barrels and five VOCs in the other barrel sample. The EPA is requesting approval for an immediate removal action for this site.

ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS

In 1980, groundwater samples taken from three on-site monitoring wells were found to be contaminated with iron, sodium, potassium, lead, magnesium, calcium, ammonia, total chromium, copper, and zinc. These

monitoring wells draw water from the upper aquifer. Soil boring samples taken at the same time revealed the presence of nickel, lead, cyanide, cadmium, chromium, copper, zinc, and iron. Sludge samples taken in 1984 and 1986 contained concentrations of nickel, lead, chloride and cyanide, chromium, and cadmium (Table 1). The recent preliminary investigation of the on-site barrel contents have tentatively identified potentially flammable hazardous wastes and a variety of VOC's.

According to the September 23, 1987, EPA Hazard Ranking System report, no air sampling has been performed because ". . . the site does not pose an air threat." There is no record of any sampling or testing of consumable plants or animals on-site or off-site.

This landfill site lacks any restriction to public access. In a February 1989 site visit by the Michigan Department of Public Health (MDPH), footprints and snowmobile tracks were observed leading on-site. During the fall 1989 visits, considerable evidence of hunting and/or target practice was noted in the form of spent shells on the ground surface. On-site physical hazards include a deep borrow pit in the northwest quadrant and partially buried scrap metal littered around an uneven terrain.

ENVIRONMENTAL AND HUMAN EXPOSURE PATHWAYS

There are potential environmental pathways associated with contaminated groundwater, soil, and sludge. Environmental media that have not been sampled but may have possible associated environmental pathways include air, surface water, sediments, and biota.

Surface waters and sediments that could potentially be contaminated by the landfill include the South Branch Creek, a wetland area south and east of the site, and the North Branch of the Kalamazoo River (300 feet south of the site). The latter is used for recreational activities including fishing and boating. Surface waters and sediments have not been sampled. However, Erie Road and the Conrail railroad tracks are believed to inhibit surface water flow from the site to the Kalamazoo River, the nearest downslope surface water.

Potential human exposure pathways include ingestion of contaminated ground water and fish; dermal contact with contaminated soils and sludges, surface waters, and sediments; and inhalation of VOCs and fugitive dusts. In 1984, MDNR officials inspected the landfill cover, saw no evidence of direct contact hazard, and concluded the site did not require fencing. MDPH agreed with their decision at that time. Since then, leaking drums have been discovered on-site and the preliminary test results indicate ignitable hazardous wastes and VOCs. Direct contact with hazardous substances are a potential human exposure pathway at this time.

DEMOGRAPHICS

A residential subdivision is located directly east of the landfill. Land use surrounding the site is both rural residential and commercial/ industrial in nature. There are no agricultural lands, and land irrigation does not occur within 3 miles of the site. The population within 1 mile of the site is approximately 1,200 people. Approximately 13,000 people within a 3-mile radius of the site use ground water for drinking water. As mentioned earlier, approximately 2,300 people within a 3-mile radius rely on private wells for their water supply and the Amberton Village subdivision, east of the landfill, has its own private water system.

EVALUATION AND DISCUSSION

The most important potential health hazards associated with this site are the high levels of certain metals (e.g., chromium) present in sludges disposed of on-site and the presence of leaking drums. The latter poses the immediate threat of direct contact with contaminants and the danger of explosion since the site is unrestricted to public access. Children playing or other unauthorized persons on-site would be the most likely to be exposed or injured. Remedial workers on-site should be adequately protected by wearing appropriate safety clothing and equipment. The landfill cover consists of sand, gravel, and sometimes dense vegetation that may not prevent transport of contaminants via fugitive dust in dry, windy weather conditions. This condition adds the potential for inhalation of contaminants off-site and direct contact with contaminants migrating off-site.

Monitoring well data indicate ground water beneath the site is contaminated. This contamination poses a threat to area residents receiving water from public or private wells near the landfill. Private wells in the area are currently being investigated in relation to another potential source of contamination nearby.

CONCLUSIONS AND RECOMMENDATIONS

Based upon information reviewed, this site is of potential public health concern because of possible exposure to hazardous substances at concentrations that may result in adverse health effects. As noted above, human exposure to various contaminants may have occurred or may occur in the future via direct contact, ingestion, and inhalation of contaminants.

It is recommended that access to this site be restricted to limit the potential for direct contact with contaminants. It is also recommended that the drums present on-site be removed and properly disposed. It is recommended that private and municipal wells within 1 mile of the site be sampled periodically for evidence of contamination. Surface water and sediment sampling is also recommended to determine the potential for ingestion and direct contact with contaminated surface waters, sediments and fish. It is recommended that the remediation option selected for this site provide for the control of off-site migration of contaminants.

It is further recommended that additional monitoring wells be installed and sampled on a regular basis. Analysis should include the testing for organic contamination along with inorganic contaminants.

When indicated by public health needs, and as resources permit, the evaluation of additional relevant health outcome data and community health concerns, if available, is recommended.

In accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, the Albion-Sheridan Township Landfill site has been evaluated for appropriate follow-up with respect to health effects studies. Although there are indications that human exposure to on-site contaminants is possibly now occurring and has possibly occurred in the past, this site is not being considered for follow-up health studies at this time because no currently available evidence substantiates hypothetically plausible human exposures to toxicants. However, if data become available suggesting that human exposure to significant levels of hazardous substances is currently occurring or has occurred in the past, ATSDR will reevaluate this site for any indicated follow-up.

Sources

MDNR files and interoffice correspondence

EPA Preliminary Assessment, 1984

ATSDR Site Summary Sheet, 1984

USEPA Site Inspection Report, 1986

HRS, 1986, 1987

Draft Report, Potentially Responsible Party Search, 1988

Terry Zick, Ted Havens, Calhoun County Health Department

Gene Hall, Michigan Department of Natural Resources

MDPH Site Visit, 2/24/89

Albion-Sheridan Township Landfill Site Assessment, 11/89

PREPARERS OF THE REPORT

Connie K. Jendralski, M.P.H.
Vaughn E. Wagner, Ph.D.
John L. Hesse, Principal Investigator
Brendan Boyle, Health Assessment Coordinator

ATSDR REGIONAL REPRESENTATIVES

Louise Fabinski, Senior Public Health Advisor, Region V, Regional Services, Office of the Assistant Administrator

Denise Jordan-Izaguirre, Public Health Advisor, Region V, Regional Services, Office of the Assistant Administrator

ATSDR TECHNICAL PROJECT OFFICER

Sharon O. Williams-Fleetwood, Ph.D., Toxicolcgist, Division of Health Assessment and Consultation

CERTIFICATION

This health assessment was prepared by the Michigan Department of Public Health, Center for Environmental Health Sciences, under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health assessment was initiated.

Technical Project Officer, SPS, RPB, DHAC

The Division of Health Assessment and Consultation, ATSDR, has reviewed this health assessment and concurs with its findings.

Director, DHAC, ATSDR

Table 1. Analysis Results

Chemical	Medium	Date	Maximum Concentration (ppm)
Iron	ground water	1980	49
	soil	1980	45,000
Sodium	ground water	1980	220
Potassium	ground water	1980	120
Lead	ground water	1980	0.4
	soil	1980	280
	sludge	1984	280
	sludge	1986	280
Magnesium	ground water	1980	55
Calcium	ground water	1980	180
Ammonia	ground water	1980	38
Chromium	ground water	1980	0.055
	soil	1980	250,000
	sludge	1986	250,000
Copper	ground water	1980	0.59
	soil	1980	100
Zinc	ground water	1980	14
	soil	1980	150,000
Nickel	soil	1980	1,000
	sludge	1984	1,000
	sludge	1986	1,000
Cyanide	soil	1980	2,100
	sludge	1984	2,100
Cadmium	soil	1980	10
	sludge	1986	10
Chloride	sludge	1984	290

Mac, Pat, Jae

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: SEP 13 1989

SUBJECT: Albion-Sheridan Township Landfill, Albion Michigan, Site # AN

FROM: R. J. Bowden

TO: N. Niedergang

As a result of the Administrator's 90 day Management Review of the Superfund Program, the Emergency & Enforcement Response Branch conducted a site inspection of the subject NPL site to determine if any immediate removal actions are appropriate.

Attached is a copy of the Technical Assistance Team (TAT) report on this inspection.

The Albion Landfill is a 30 acre landfill that operated from 1966 to 1981. It took industrial and municipal wastes. It is in a sandy area and is reportedly underlain by a clay layer. There is no assurance that the clay layer is continuous or effective.

There is no effective site security. There are drums and other containers on or near the surface that may contain hazardous materials. There are several private and a municipal well within one mile of the site. We have been able to find no evidence that these wells have been tested.

The Removal Program will assign an OSC to this site. If the facts reported by the TAT are confirmed we will develop an administrative order for the responsible parties to:

1. Eliminate the surface threat by removing drums, pails and vats from the surface.
2. Establish site security.
3. Sample all wells used for water supply in the vicinity of the landfill.

If the responsible parties do not respond we will undertake these actions with Federal funds. Please notify the appropriate RPM so that we may coordinate removal and remedial activities on the site.

cc: R. Powers
M. Gade

Bob Bowden

WESTON • SPER River Center, 111 North Canal Street, 8th Floor, Suite 855, Chicago, IL 60606 • (312) 993-1067

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

Mr. Steven J. Faryan
Deputy Project Officer
Emergency Response Section
Western Response Unit
U.S. Environmental Protection Agency
11th Floor
230 South Dearborn Street
Chicago, Illinois 60604

September 5, 1989

TAT-05-G2-01292

Re: Albion - Sheridan Township Landfill, Albion, Michigan,
TDD#5-8907-33

Dear Mr. Faryan:

On July 19, 1989, the U.S. Environmental Protection Agency (U.S. EPA) tasked the Technical Assistance Team (TAT) to review the Albion - Sheridan Township Landfill (Albion), a National Priorities List (NPL) site, for a possible removal action. After review of the available files, and interviews with state and local officials, the TAT conducted a site investigation on August 15, 1989.

The Albion site is a closed landfill located at 13355 29-Mile Road, 1 mile east of Albion, Calhoun County, Michigan (Figure 1). The site is situated in a predominantly residential and agricultural area. The topography of the site varies from flat to rolling hills with a 15 foot relief. The landfill was covered with sand and gravel and heavy vegetative growth. Soils and gravel overlie the Marshal Sandstone Formation. Reportedly, the owner stated that a natural clay layer was at the bottom of the landfill with a sand layer above it; however, given the geology in the area and well logs, the clay layer may not be continuous. The landfill is not fenced, but a locked gate restricts vehicular access to the site.

An estimated 13,500 people obtain drinking water from public and private wells within a 3 mile radius of the site. There are six municipal wells supplying water to the residents of Albion with the closest municipal well approximately 1 mile from the site. The municipal wells and area private wells drain water from the Marshal Sandstone aquifer with well depths ranging from 64-350 feet. The closest residence is approximately 200 feet west of the site. According to Betty Michalski of the Michigan Department of Natural Resources (MDNR) residential well sampling has never been conducted around the site.

The 30 acre landfill was active from 1966 until closure in 1981. The privately owned landfill accepted municipal refuse and industrial wastes from Albion and nearby Sheridan Township. Reportedly, the facility accepted 1,975 cubic yards of sludge, and 35,000 drums of spent solvents and paint wastes. Samples collected by the MDNR in 1980 indicated that the sludge contained heavy metals and cyanide.

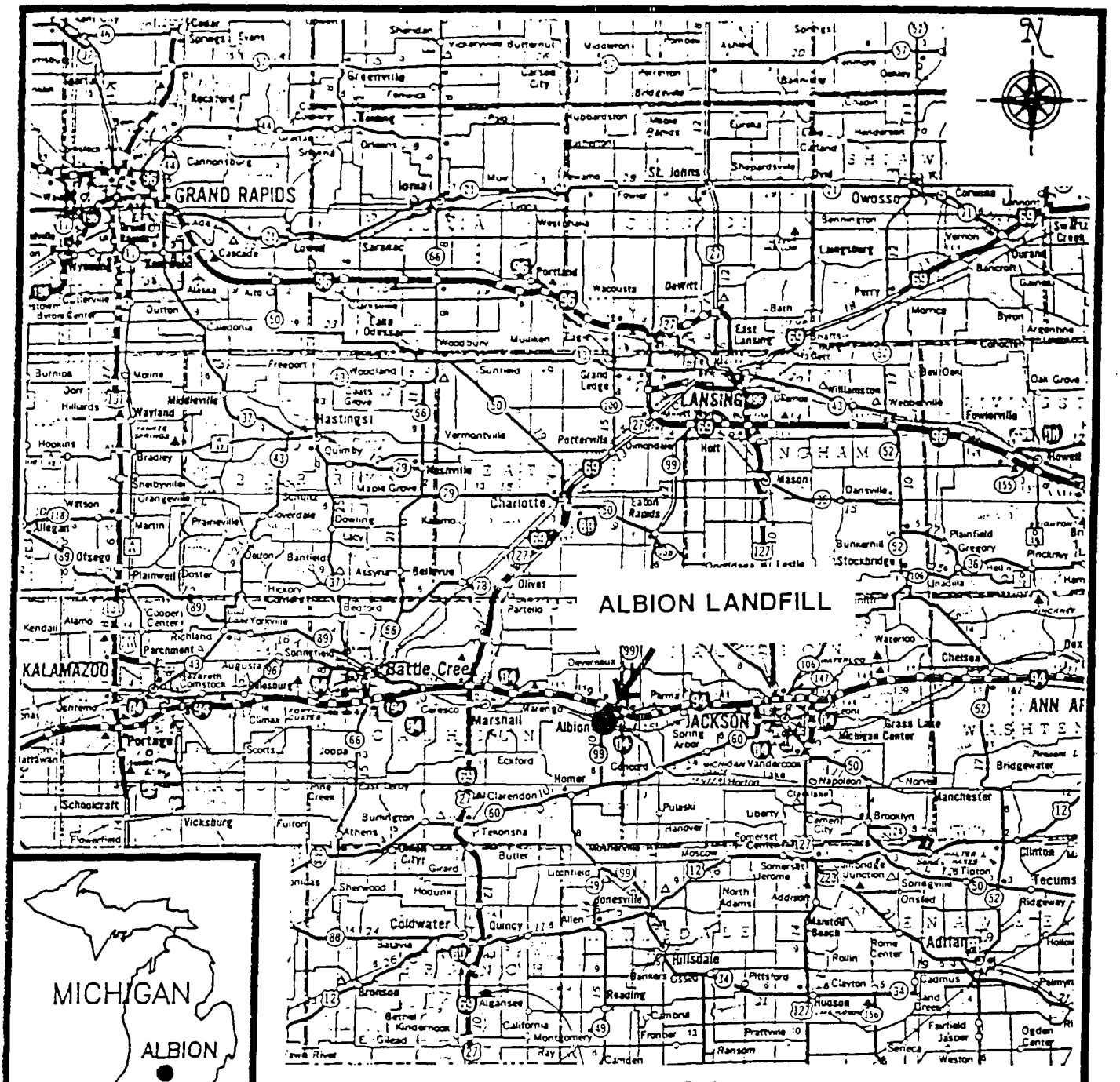
On August 15, 1989, TAT members Richard Mehl, Steven Bosko, and Nikhil Kumaranayagam accompanied Ms. Michalski of the MDNR on an investigation of the Albion site. Air monitoring conducted with a Tritector-combustible gas indicator, organic vapor analyzer (OVA), and radiation meter revealed no readings above background levels. The TAT observed approximately 26 55-gallon drums and 15 5-gallon pails, many containing what appeared to be grease and paint wastes. The TAT also observed two rubber-lined vats containing vegetative growth, two partially buried fuel tanks, one empty 8,000 gallon oil-storage tank and several half-buried drums protruding through the landfill surface.

The TAT collected two drum and one sludge sample from various areas of the site (Figure 2). Sample #1 was grease-like material from a drum labeled as industrial grease; Sample #2, was a hard paint-sludge material from an unlabeled drum; and Sample #3 was a grease-like material that was spread on the ground. The samples were analyzed for Resource Conservation and Recovery Act (RCRA) parameters, under TAT Analytical Services TDD# 5-8908-L5.

The analytical results of the three samples did not indicate that the waste were hazardous based on RCRA characteristics; however, the potential for drums containing hazardous wastes still exists at the site.

Conditions observed at the Albion site that may be considered to warrant a removal action as outlined in Section 300.65(b)(2) of the National Contingency Plan (NCP) include:

- Potential exposure to hazardous substances by nearby populations or animals;
- Hazardous substances in drums and tanks that may pose a threat of release;



SOURCE: UNIVERSAL MAP ENTERPRISES, 1988.

FIGURE 1

SITE LOCATION MAP

ALBION LANDFILL

ALBION, MICHIGAN

SCALE: 1 INCH = 14.5 MILES

WESTON

MANAGERS DESIGNERS/CONSULTANTS

DRAWN BY	DATE	PCS #
M. BALAZS	8-29-89	2323
APPROVED BY	DATE	TDD #
R. MEHL	8-29-89	5-8907-33

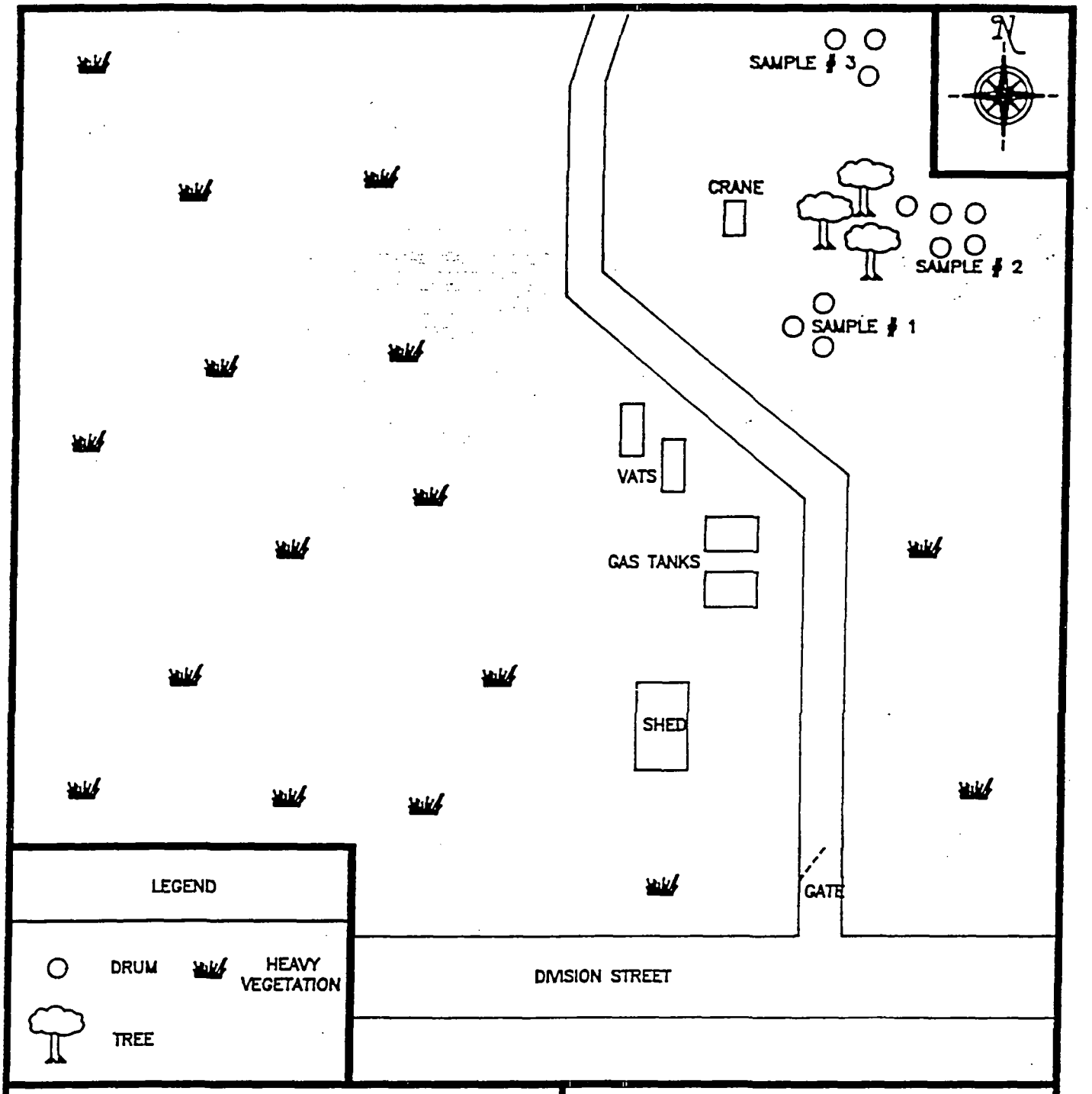


FIGURE 2

SITE MAP

ALBION LANDFILL

ALBION, MICHIGAN

NOT TO SCALE

WESTON MANAGERS DESIGNERS/CONSULTANTS

DRAWN BY M. BALAZS	DATE 8-29-89	PCS # 2323
APPROVED BY R. MEHL	DATE 8-29-89	TDD # 5-8907-33

WESTON·SPER

- High levels of hazardous substances in soils at or near the surface that may migrate; and
- Actual or potential contamination of drinking water supplies or sensitive ecosystems.

Should you have any questions or require additional information please feel free to contact us.

Very truly yours,

ROY F. WESTON, INC.

Richard H. Mehl, Jr.
Environmental Engineer

Phillip C. Wicklein
Technical Assistance Team
Team Leader, Region V

RHM:dn

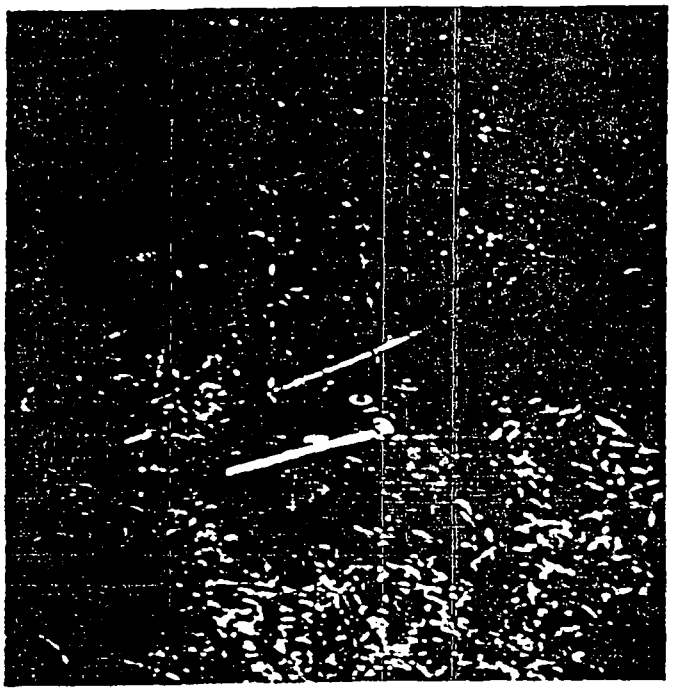


PHOTO: 1
SITE: ALBION LANDFILL
DESCRIPTION: UNDERGROUND TANK
DATE/TIME: AUGUST 15, 1989/1330
PHOTOGRAPHER: R. MEHL

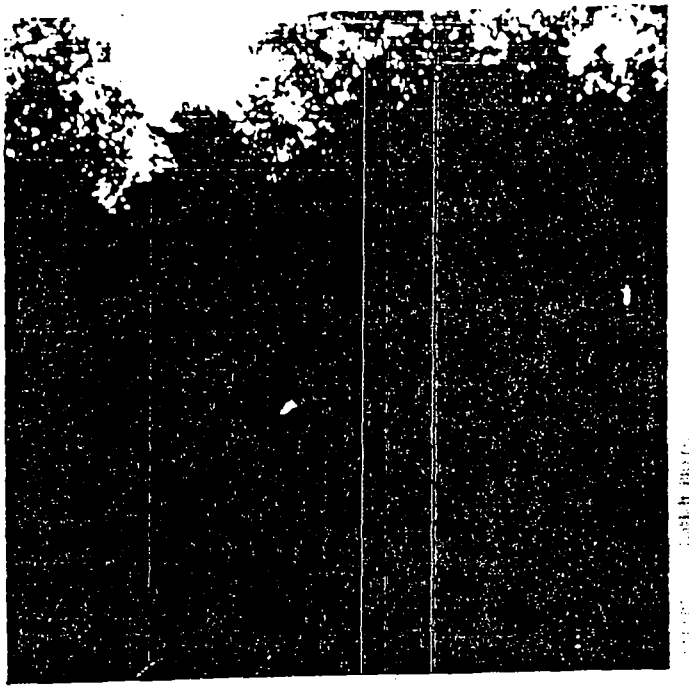


PHOTO: 2
SITE: AL
DESCRIPTION: THREE EMPTY DRUMS
DATE/TIME: AUGUST 15, 1989/1335
PHOTOGRAPHER: R. MEHL